

ABSTRACT OF THE DISCLOSURE

This invention relates to an x-ray based non-intrusive inspection apparatus. An x-ray source is mounted to a gantry and provides x-rays that transmit through an object. The x-rays have an included angle between first and second shadow lines. A circle of reconstruction is formed upon rotation of the gantry having a radius from a center axis of rotation of the gantry to a closest point on the first shadow line. The second shadow line passes through the center axis so that x-rays transmit through only half of the circle of reconstruction at any given moment. The entire volume within the circle of reconstruction is scanned due to rotation of the gantry. Such an assembly allows for the x-ray source to be placed closer to the center axis of rotation of the gantry without reducing the radius of the circle of reconstruction.